

65795
Highland Basalt
6.84 grams

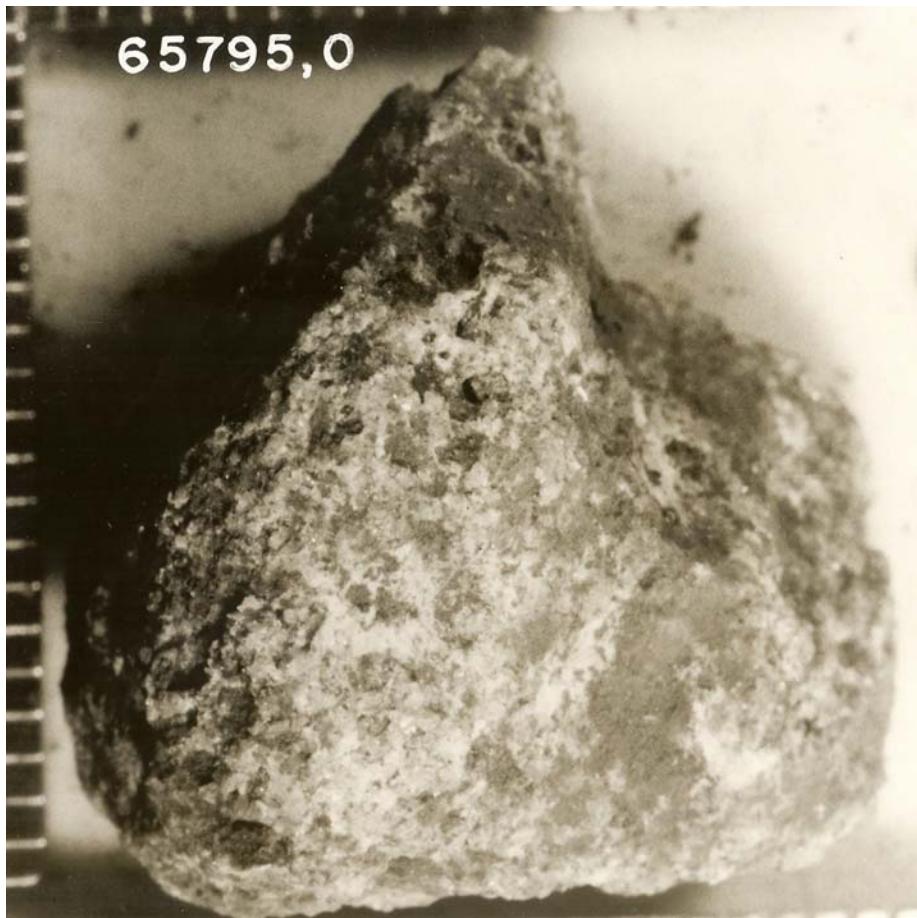


Figure 1: Photo of 65795 with mm scale. S72-48955

Introduction

65795 is a rake sample from station 5 – see section on 65701. It has a basaltic texture, is highly aluminous and has high Ir and Au so it is considered an “impact melt”. 65795 has been dated at 3.81 b.y.

Petrography

Dowty et al. (1974), Warner et al. (1976) and Ryder and Norman (1980) describe 65795 as an igneous rock with “basaltic” texture (figure 2). Plagioclase laths are up to 1.5 mm long and poikilitically enclose pyroxene and olivine. Some plagioclase are blocky and may be relict xenocrysts. Plagioclase is An98; olivine and pyroxene range in composition (figure 3). Accessory minerals are ilmenite, Ni-Fe metal, troilite and a silica phase.

Chemistry

Warner et al. (1976) reported major element analysis and Deutsch and Stoffler (1987) reported trace element analysis (table).

Radiogenic age dating

Deutsch and Stoffler (1987) determined a Rb-Sr isochron age of 3.81 b.y. for 65795 (figure) with ($\epsilon^{87} = 1.42^{-11} \text{ yr}^{-1}$).

Processing

There are 4 thin sections.



Figure 2: Photomicrograph of thin section 65795,2
Width of field is 2.5 mm.

Summary of Age Data for 65795

Rb-Sr
Deutsch and Stoffler 1987 3.81 ± 0.04 b.y.

References for 65795

Butler P. (1972a) Lunar Sample Information Catalog Apollo 16. Lunar Receiving Laboratory. MSC 03210 Curator's Catalog. pp. 370.

Deutsch A. and Stoffler D. (1987) Rb-Sr-analyses of Apollo 16 melt rocks and a new age estimate for the Imbrium basin: Lunar basin chronology and the early heavy bombardment of the moon. *Geochim. Cosmochim. Acta* **51**, 1951-1964.

Dowty E., Keil K. and Prinz M. (1974a) Igneous rocks from Apollo 16 rake samples. *Proc. 5th Lunar Sci. Conf.* 431-445.

Keil K., Dowty E., Prinz M. and Bunch T.E. (1972) Description, classification and inventory of 151 Apollo 16 rake samples from the LM area and station 5. Curator's Catalog, JSC.

LSPET (1973b) The Apollo 16 lunar samples: Petrographic and chemical description. *Science* **179**, 23-34.

LSPET (1972c) Preliminary examination of lunar samples. In Apollo 16 Preliminary Science Report. NASA SP-315, 7-1—7-58.

McKinley J.P., Taylor G.J., Keil K., Ma M.-S. and Schmitt R.A. (1984) Apollo 16: Impact sheets, contrasting nature of the Cayley Plains and Descartes Mountains, and geologic history. *Proc. 14th Lunar Planet. Sci. Conf.* in *J. Geophys. Res.* **89**, B513-B524.

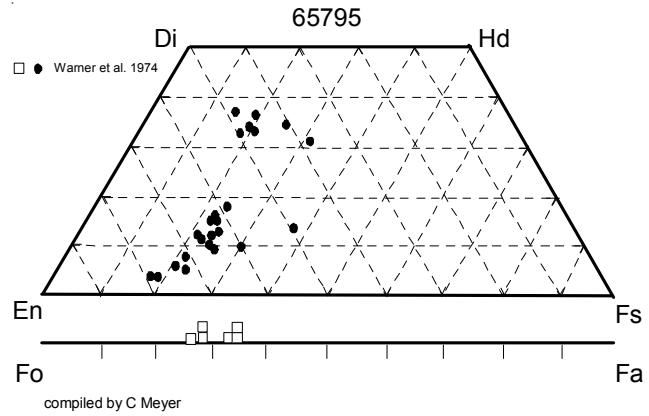


Figure 3: Pyroxene and olivine in 65795 (Warner et al. 1976).

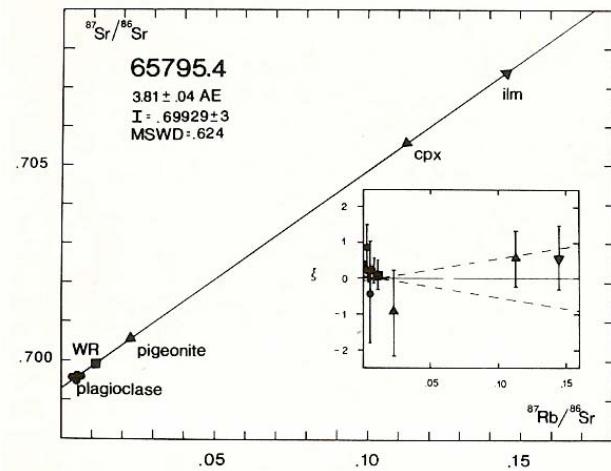
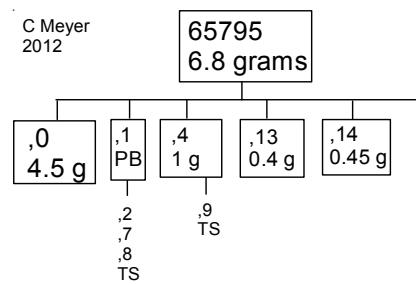


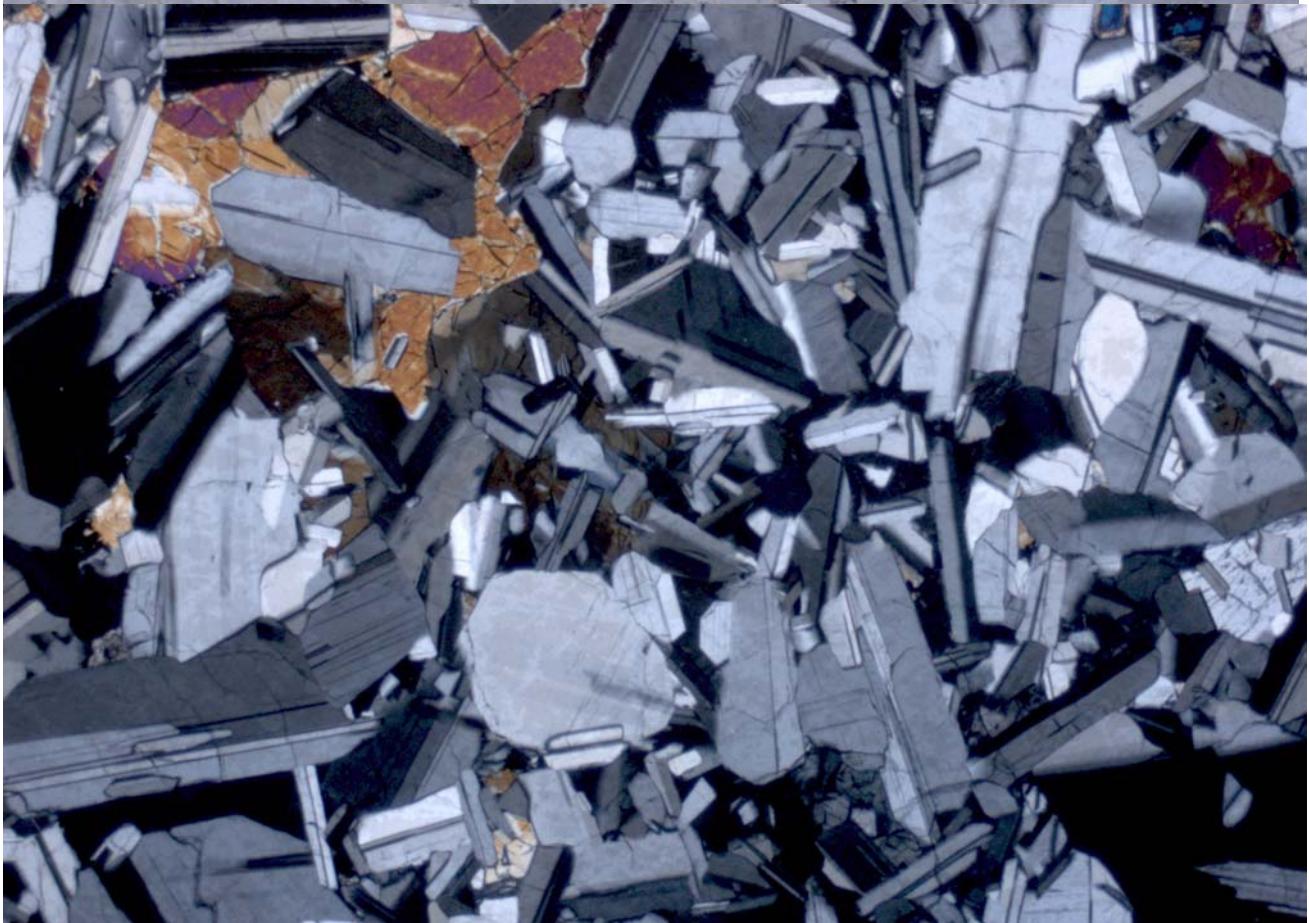
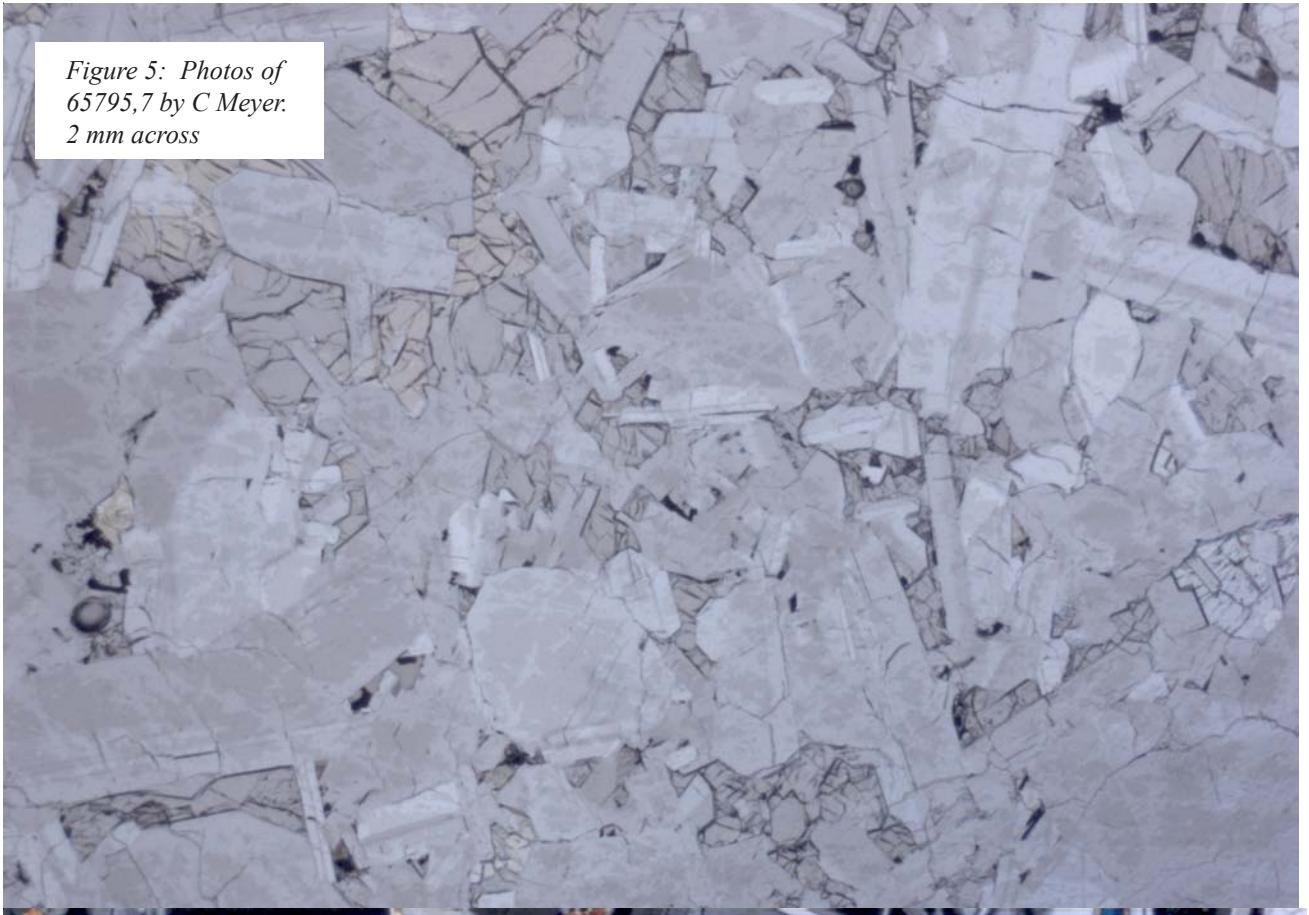
Figure 4: Internal Rb-Sr isochron for 65795 (Deutsch and Stofler 1984).

Ryder G. and Norman M.D. (1980) Catalog of Apollo 16 rocks (3 vol.). Curator's Office pub. #52, JSC #16904

Sutton R.L. (1981) Documentation of Apollo 16 samples. In Geology of the Apollo 16 area, central lunar highlands. (Ulrich et al.) U.S.G.S. Prof. Paper 1048.

Warner R.D., Dowty E., Prinz M., Conrad G.H., Nehru C.E. and Keil K. (1976c) Catalog of Apollo 16 rake samples from the LM area and station 5. Spec. Publ. #13, UNM Institute of Meteoritics, Albuquerque. 87 pp.





*Figure 6: This is 65795.9.
It is a basalt and it is from
the highlands. Any
Questions? 2 mm across*

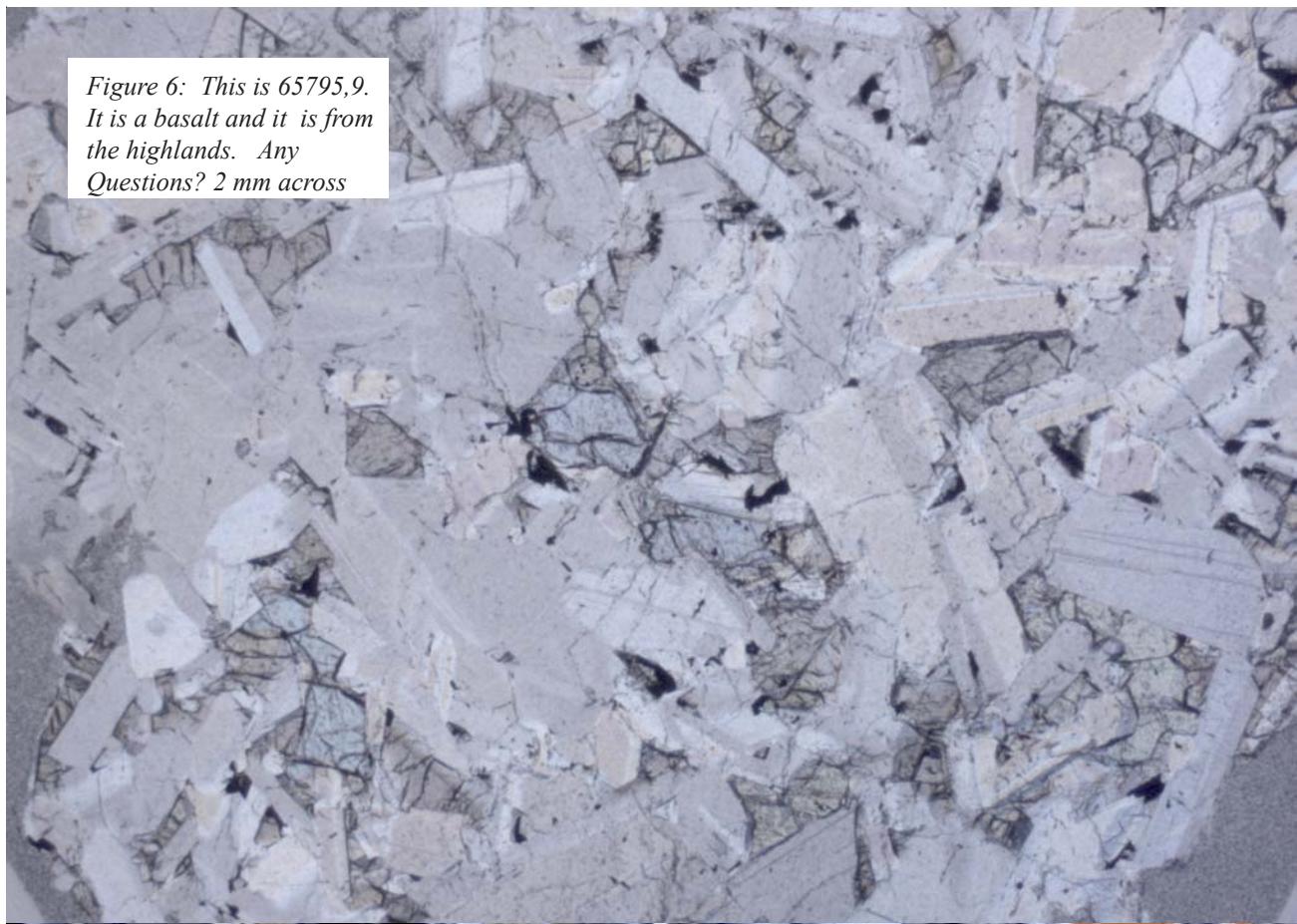


Table 1. Chemical composition of 65795

reference	McKinley84	Dowty74	Deutsch87
weight		Warner76	
SiO ₂ %	45.2	(a)	
TiO ₂	0.19	(a)	
Al ₂ O ₃	31.4	(a)	
FeO	2.25	(a)	
MnO	0.02	(a)	
MgO	2.78	(a)	
CaO	17.3	(a)	
Na ₂ O	0.44	(a) 0.39	(b)
K ₂ O	0.07	(a) 0.04	(b)
P ₂ O ₅	0.08	(a)	
S %			
<i>sum</i>			
Sc ppm		5.85	(b)
V			
Cr		450	(b)
Co		25	(b)
Ni		360	(b)
Cu			
Zn			
Ga			
Ge ppb			
As			
Se			
Rb			
Sr			
Y			
Zr			
Nb			
Mo			
Ru			
Rh			
Pd ppb			
Ag ppb			
Cd ppb			
In ppb			
Sn ppb			
Sb ppb			
Te ppb			
Cs ppm			
Ba			
La		5.43	(b)
Ce		15.4	(b)
Pr			
Nd		8.6	(b)
Sm		2.52	(b)
Eu		1.01	(b)
Gd			
Tb		0.57	(b)
Dy		3.81	(b)
Ho		0.79	(b)
Er		2	(b)
Tm		0.3	(b)
Yb		1.82	(b)
Lu		0.25	(b)
Hf		1.91	(b)
Ta		0.26	(b)
W ppb			
Re ppb			
Os ppb			
Ir ppb		12	(b)
Pt ppb			
Au ppb		3.8	(b)
Th ppm		0.84	(b)
U ppm		0.25	(b)

technique: (a) broad beam e probe, (b) INAA